AMENDMENTS TO THE CLAIMS

Claim 1 (previously presented): A command synchronization establishment system comprising:

a network wherein a cycle master node managing time on the network periodically transmits a cycle start packet including time information to each node connected to the network, each node synchronizes its clock in accordance with the time information included in the cycle start packet so as to assure isochronism on the network by sharing the synchronized clock with each other node, data is periodically transferred by an isochronous transfer following the cycle start packet, and a command is transferred by an asynchronous transfer using a time period after the isochronous transfer until the next cycle start packet;

a controller as a node connected to the network, comprising a transmitter that transmits a command including a time-stamp based on the synchronized clock to a target apparatus by using the asynchronous transfer; and

the target apparatus as another node connected to the network, comprising a receiver that receives the command, a storage device that temporally stores the received command in order not to execute the received command instantly, a transmitter that transmits an interim response to the controller reflecting that the received command will be executed when a current time based on the synchronized clock reaches a time represented by the time-stamp included in the command, an executing device that executes the received command when the current time based on the synchronized clock reaches the time represented by the time-stamp included in the command, and a replying device that provides a complete response indicating completion of executing the command.

Claim 2 (previously presented): A command synchronization establishment system comprising:

a network wherein a cycle master node managing time on the network periodically transmits a cycle start packet including time information to each node connected to the network, each node synchronizes its clock in accordance with the time information included in the cycle start packet so as to assure isochronism on the network by sharing the synchronized clock with each other node, data is periodically transferred by an isochronous transfer following the cycle start packet, and a command is transferred by an asynchronous transfer using a time period after the isochronous transfer until the next cycle start packet;

a controller as a node connected to the network, comprising a transmitter that transmits a command including a time-stamp based on the synchronized clock to a target apparatus by using the asynchronous transfer; and

the target apparatus as another node connected to the network, comprising a receiver that receives the command, a storage device that temporally stores the received command in order not to execute the received command instantly, a transmitter that transmits an interim response to the controller reflecting that the received command will be executed when a current time based on the synchronized clock reaches a time represented by the time-stamp included in the command, and an executing device that executes the received command before the current time based on the synchronized clock reaches the time represented by the time-stamp included in the command and validates a result of the execution of the received command when the current time based on the synchronized clock reaches the time represented by the time-stamp.

Claim 3 (canceled)

Claim 4 (previously presented): A command synchronization establishment system according to claim 1, wherein said each node connected to the network shares the synchronized clock with each other node by copying the time information included in the cycle start packet to a cycle time register in each node, and

said time-stamp included in the command is in a format including a part or all formats of the cycle time register.

Claim 5 (previously presented): A command synchronization establishment system according to claim 1, wherein said command includes a flag instructing the executing device to execute the command instantly or when the current time reaches the time represented by the time-stamp included in the command, and the target apparatus determines whether to execute the received command instantly or when the current time reaches the time represented by the time-stamp in accordance with the flag.

Claim 6 (original): A command synchronization establishment system according to claim 5, wherein the flag uses a part of a format of the time-stamp included in the command.

Claim 7 (previously presented): A command synchronization establishment method using a network wherein a cycle master node managing time on the network periodically transmits a cycle start packet including time information to each node connected to the network, each node synchronizes its clock in accordance with the time information included in the cycle start packet so as to assure isochronism on the network by sharing the synchronized clock with each other node, data is periodically transferred by an isochronous transfer following the cycle start packet, and a command is transferred by an asynchronous transfer using a time period after the isochronous transfer until the next cycle start packet, the method comprising the steps of:

transmitting a command including a time-stamp based on the synchronized clock to a target apparatus by using the asynchronous transfer from a controller as a node connected to the network;

receiving the command by the target apparatus as another node connected to the network;

temporally storing the received command in order not to execute the received command instantly;

transmitting an interim response to the controller reflecting that the received command will be executed when a current time based on the synchronized clock reaches a time represented by the time-stamp included in the command;

executing the received command when the current time based on the synchronized clock reaches the time represented by the time-stamp included in the command; and

providing a complete response indicating completion of executing the command.

Claim 8 (previously presented): A controller for a command synchronization establishment system connected as a node to a network to which a target apparatus is connected as another node, said target apparatus comprising a receiver that receives the command, a storage device that temporally stores the received command in order not to execute the received command instantly, a transmitter that transmits an interim response to the controller reflecting that the received command will be executed when a current time based on a synchronized clock reaches a time represented by a time-stamp included in the command, an executing device that executes the received command when the current time based on the synchronized clock reaches the time represented by the time-stamp included in the command, and a replying device that provides a complete response indicating completion of executing the command, and wherein a cycle master node managing time on the network periodically transmits a cycle start packet including time information to each node connected to the network, each node synchronizes its clock in accordance with the time information included in the cycle start packet so as to assure isochronism on the network by sharing the synchronized clock with each other node, data is periodically transferred by an isochronous transfer following the cycle start packet, and a command is transferred by an asynchronous transfer using a time period after the isochronous transfer until the next cycle start packet; the controller comprising:

a transmitter that transmits a command including a time-stamp based on the synchronized clock to the target apparatus by using the asynchronous transfer; and

a receiver that receives the interim response reflecting that the received command will be executed when the current time based on a shared clock reaches a time represented by a time-stamp included in the command and that receives the complete response indicating completion of executing the command.

Claim 9 (previously presented): A target apparatus for a command synchronization establishment system using a network to which a controller comprising a transmitter that transmits a command including a time-stamp based on a synchronized clock to the target apparatus by using the asynchronous transfer is connected as a node, and wherein a cycle master node managing time on the network periodically transmits a cycle start packet including time information to each node connected to the network, each node synchronizes its clock in accordance with the time information included in the cycle start packet so as to assure isochronism on the network by sharing the synchronized clock with each other node, data is periodically transferred by an isochronous transfer following the cycle start packet, and a command is transferred by a asynchronous transfer using a time period after the isochronous transfer until the next cycle start packet, the target apparatus as another node connected to the network comprising:

a receiver that receives the command;

a storage device that temporally stores the received command in order not to execute the received command instantly;

a transmitter that transmits an interim response representing to the controller reflecting that the received command will be executed when a current time based on the synchronized clock reaches a time represented by the time-stamp included in the command;

an executing device that executes the received command when the current time based on the synchronized clock reaches the time represented by the time-stamp included in the command; and

a replying device that provides a complete response indicating completion of executing the command.

Claim 10 (previously presented): A command synchronization system, comprising:

means for networking nodes wherein a cycle master node managing time on the network periodically notifies a cycle start packet including time information to each node connected to the network, each node synchronizes its clock in accordance with the time information included in the cycle start packet so as to assure isochronism on the network by sharing the synchronized clock with each other node, data is periodically transferred by an isochronous transfer following the cycle start packet, and a command is transferred by an asynchronous transfer using a time period after the isochronous transfer until the next cycle start packet;

means for transmitting a command including a time-stamp based on the synchronized clock to a target apparatus by using the asynchronous transfer from a controller connected to the network as a node;

means for receiving the command by the target apparatus connected to the network as another node;

means for temporally storing the received command in order not to execute the received command instantly;

means for transmitting an interim response to the controller reflecting that the received command will be executed when a current time based on the synchronized clock reaches a time represented by the time-stamp included in the command;

means for executing the received command when the current time based on the synchronized clock reaches the time represented by the time-stamp included in the command; and

means for providing a complete response indicating completion of executing the command.